CLAIMS

A listing of all claims and their current status in accordance with 37 C.F.R. § 1.121(c) is provided below.

1. (Currently Amended) A method of creating an image which includes the steps of:

obtaining a representation of the brightness of an image, said representation being linear over the whole range of brightness, by calculating, for each of a set of pixels (x, y) in a two dimensional array, an estimate of the true image intensity (i_{xy}) as a weighted average of n samples of the apparent image intensity ($v_{n,xy}$) as

$$\hat{i}_{xy} = \frac{\sum_n \left(w_{n,xy} \left(\frac{v_{n,xy} - C}{KT_n} \right) \right)}{\sum_n w_{n,xy}} = \frac{1}{K} \frac{\sum_n \left(w_{n,xy} \left(\frac{v_{n,xy} - C}{T_n} \right) \right)}{\sum_n w_{n,xy}}$$

$$\hat{i}_{xy} = \frac{\sum_n w_{n,xy} \left(\frac{v_{n,xy} - \sum_n b_n}{\prod_n a_n} \right)}{\sum_n w_{n,xy}}$$

where a_n and b_n are the gradient a and offset b measured between image n and image n-1 (a_1=1; b_1=0) when

$$w_{n,xy} = \begin{cases} \prod_n a_n & v_{\min} < v_{n,xy} < v_{\max} \\ 0 \quad \text{when} & v_{n,xy} \geq v_{\max} \\ 0 & v_{n,xy} \leq v_{\min} \end{cases}$$

where $v_{n,xy}$ is the apparent intensity measured, n is greater than or equal to 2, ~~T_n is the exposure time, K is the gain of the system, C is an offset~~ and v_{min} and v_{max} are ~~$w_{n,xy}$ is a weighting factor which is~~ defined to ~~maximise~~ maximize the signal to noise ratio and discard insignificant, that is saturated or near zero, values;

thereafter saving each of the values i_{xy} together with other data representing the image; and

outputting the image to a display or to a printing device.

2. (Currently Amended) A method according to claim 1, wherein the gradients a and the offsets b are obtained ~~a linear relationship is established between images recorded with different exposure times~~ by the use of a ~~perpendicular~~ regression technique whereby each image is transformed to match the scale and offset of the first in the series. ~~and whereby the weighted average is calculated as:~~

$$\hat{i}_{xy} = \frac{\sum_n w_{n,xy} \left(\frac{v_{n,xy} - \sum_n b_n}{\prod_n a_n} \right)}{\sum_n w_{n,xy}}$$

~~where a_n and b_n are the gradient a and offset b measured between image n and image n-1 (a_1=1; b_1=0) when~~

$$w_{n,xy} = \begin{cases} \prod_n a_n & v_{\min} < v_{n,xy} < v_{\max} \\ 0 \quad \text{when} & v_{n,xy} \geq v_{\max} \\ 0 & v_{n,xy} \leq v_{\min} \end{cases}$$

3. (Original) A method according to claim 1 or claim 2, wherein the image is a coloured image and the offset is colour dependent.

4. (New) A method according to claim 2, wherein the regression is a perpendicular regression.